KySat-1
OVERVIEW for NOAA WebSite

KySat-1 is a 1U (10cm) cubesat designed primarily as a test bed for the KySat standard bus with a concept of operations targeted primarily at outreach to K-12 students across Kentucky. A low resolution camera for education/public outreach (E/PO) is the primary "payload" on-board KySat-1. A secondary payload is a broad-band S-band radio that has limited flight heritage. The primary purpose of the project was to develop a satellite bus that can be reused/leveraged to evolve a standard system for future Kentucky Space payloads. Several commercial off-the-shelf subsystems (C&DH, EPS, and radios) were utilized in the design of KySat-1 along with the development of custom subsystems (payload interface module, system support module, antenna systems and deployment).

The primary goal of the KySat-1 project is education and public outreach (E/PO). The satellite system is designed and intended to be accessible to pre-college students and the amateur radio community. Contacts can be made with the satellite utilizing inexpensive amateur radio equipment. Students can receive data and telemetry from the satellite and upload audio and text files that can be downloaded by students at other schools. Students can also download (extremely) low resolution images taken by the satellite's imaging system and "command" the satellite (via an authorized operator scheduled over the Internet) to take pictures and send data at specified times.

KySat-1 Data Encoding Standards are used for each of the following: Timestamp Encoding, Data Transcoding (MIME) and a custom Byte-Wise Translation. Data and telemetry collected by the amateur radio community and pre-college students will be posted on the APRS system. Additionally, data and images from the satellite will be posted on the Kentucky Space website. The Kentucky Space website will also have a portal that can be used to issue commands to the satellite (i.e. take a picture of the Earth, upload audio for broadcasting later in the orbit, request telemetry, etc.). KySat-1 is intended to be used by the pre-college science community to excite students about space science and engineering and to allow students to interact with a live spacecraft on orbit.

KySat-1 will be launched as a secondary payload on NASA's Glory mission. Glory will orbit as part of the Afternoon Constellation, also known as the A-Train, which is a series of Earth-observing satellites flying in close formation. The A-Train orbits the Earth once every 100 minutes in a sun synchronous orbit (SSO).

KySat-1 is the first orbital satellite developed by Kentucky Space. Kentucky Space, LLC is a non-profit single member LLC enterprise engaged in R&D, educational and small entrepreneurial commercial space solutions. The Kentucky Space program is a collaborative effort of public and private partners throughout the state of Kentucky focused on small satellite development and access to space for small payloads. The Kentucky Space consortium was formed under the leadership of the Kentucky Science and Technology Corporation (KSTC) a private nonprofit corporation committed to the advancement of science, technology and innovative economic development in Kentucky. The Kentucky Space

Consortium includes KSTC, the University of Kentucky, Morehead State University, the University of Louisville, Western Kentucky University, Murray State University, the Kentucky Community and Technical College System, and Belcan Corporation serving in a consulting role.

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